AMENDMENTS

In the Claims

1.**(canceled)**

2.**(canceled)**

3.**(canceled)**

4.**(canceled)**

5.**(canceled)**

6.**(canceled)**

7.**(canceled)**

8.**(canceled)**

9.**(canceled)**

10.**(previously presented)** A composition comprising a polymerizing agent including a molecular tag covalently bonded to a site on the polymerizing agent and a monomer including a molecular tag, where at least one of the tags has a fluorescence property that undergoes a change before, during and/or after each of a sequence of monomer incorporations due to an interaction between the polymerizing agent tag and the monomer tag.

11.**(canceled)**

12.**(canceled)**

13.**(previously presented)** The composition of claim 10, wherein the polymerizing agent is a polymerase or reverse transcriptase.

14.**(previously presented)** The composition of claim 13, wherein the polymerase is selected from the group consisting of *Taq* DNA polymerase I, T7 DNA polymerase, Sequenase, and the Klenow fragment from *E. coli* DNA polymerase I.

15.**(previously presented)** The composition of claim 13, wherein the reverse transcriptase comprises HIV-1 reverse transcriptase.

PAGE 3/9 * RCVD AT 12/29/2005 12:37:36 PM [Eastern Standard Time] * SVR:USPTO-EFXRF-6/28 * DNIS:2738300 * CSID:713 977 7011 * DURATION (mm-ss):02-50

16.**(previously presented)** The composition of claim 10, wherein each of the monomers comprises a deoxynucleotide triphosphate (dNTP) and the monomer tag is covalently bonded to the β or γ phosphate group of each dNTP.

17.**(previously presented)** The composition of claim 10, wherein the tags comprise fluorescent tags and the fluorescence property comprises an intensity and/or frequency of emitted fluorescent light.

18.**(previously presented)** The composition of claim 17, wherein the fluorescence property is fluorescence resonance energy transfer (FRET) where either the monomer tag or the polymerase tag comprises a donor and the other tag comprises an acceptor and where FRET occurs when the two tags are in close proximity.

19.**(previously presented)** The composition of claim 14, wherein the polymerase comprises *Taq* DNA polymerase I having a tag attached to an amino acid at a specific amino acid position of the *Taq* DNA polymerase I, where the amino acid position is selected from the group consisting of 513-518, 643, 647, 649 and 653-661 of SEQ. ID No. 11, where the tag comprises a fluorescent molecule.

20.**(canceled)**

21.**(canceled)**

22.**(canceled)**

22.**(canceled)**

23.**(canceled)**

24.**(canceled)**

25.**(withdrawn)** A single molecule sequencing apparatus comprising a substrate having a first chamber in which at least one tagged polymerase is confined therein and a second chamber including tagged dNTPs and a channel interconnecting the chambers, where a detectable property of at least one tag undergoes a detectable change during a monomer incorporation cycle.

PAGE 4/9 * RCVD AT 12/29/2005 12:37:36 PM [Eastern Standard Time] * SVR:USPTO-EFXRF-6/28 * DNIS:2738300 * CSID:713 977 7011 * DURATION (mm-ss):02-50

26.(**withdrawn**) The apparatus of claims 24, further comprising a plurality of monomer chambers, one for each tagged dNTP.

27.(**withdrawn**) A mutant Taq polymerase comprising native Taq polymerase with a cysteine residue replacement at a site selected from the group consisting of 513-518, 643, 647, 649 and 653-661 and mixtures or combinations thereof.

28.(**withdrawn**) The polymerase of claim 27, wherein the cysteine residue includes a tag covalently bonded thereto through the SH group.

29.(**withdrawn**) A system for retrieving stored information comprising:

a unknown nucleotide sequence representing a data stream;

a single-molecule sequencer including a polymerase having a tag associated therewith and monomers for the polymerase, each monomer having a tag associated therewith;

an excitation source adapted to excite the at least one of the tags; and

a detector adapted to detect a response from at least one of the tag,

where the response changes during polymerization of a complementary sequence and the changes in response represent a content of the data stream.

30.(**withdrawn**) A system for determining sequence information from a single molecule comprising:

a unknown nucleotide sequence;

a single-molecule sequencer comprising a polymerase having a tag associated therewith and monomers for the polymerase, each monomer having a tag associated therewith;

a excitation source adapted to excite at least one of the tags; and

a detector adapted to detect a response from at least one of the tags,

where the response changes during polymerization of a complementary sequence and the changes in the response represent the identity of each nucleotide in the unknown sequence.

31.(**withdrawn**) A method for sequencing a molecular sequence comprising:

supplying an unknown sequence of nucleotides or nucleotide analogs to a single-molecule

PAGE 5/9 * RCVD AT 12/29/2005 12:37:36 PM [Eastern Standard Time] * SVR:USPTO-EFXRF-6/28 * DNIS:2738300 * CSID:713 977 7011 * DURATION (mm-ss):02-50

sequencer comprising a polymerase having a fluorescent donor covalently attached thereto and monomers for the polymerase, each monomer having a unique fluorescent acceptor covalently bonded to the beta or gamma phosphate thereof;

exciting the fluorescent donor with a light from an excitation light source;

detecting emitted fluorescent light from the acceptor during a monomer incorporation cycle via a fluorescent light detector, where an intensity and/or frequency of the emitted light for the incorporating acceptors changes during each monomer incorporation cycle; and

converting the changes into an identity of each nucleotide or nucleotide analog in the unknown sequence.

32.(**withdrawn**) A method of sequencing an individual nucleic acid molecule or numerous individual molecules in parallel including the steps of:

immobilizing a member of the replication complex comprising a polymerase including a tag attached thereto, a primer or a template sufficiently spaced apart to allow resolution detection of each complex on a solid support;

incubating the replication complex with cooperatively-tagged nucleotides, each nucleotide including a unique tag at its gamma-phosphate, where each nucleotide can be individually detected;

detecting each nucleotide incorporated by the polymerase as the polymerase transitions between its open and closed form, which causes a change in a detectable property of at least one of the tags or as the pyrophosphate group is released by the polymerase; and

relating the changes in the detectable property to the sequence of nucleotides in an unknown nucleic acid sequence.

33.(**withdrawn**) A γ-phosphate modified nucleoside comprising γ-phosphate modified dATP, dCTP, dGTP and dTTP.

34.(**withdrawn**) A primer sequence or portion thereof selected from the group consisting of Sequence 1 through 29.

35.(**canceled**)

36.(**canceled**)

PAGE 6/9 * RCVD AT 12/29/2005 12:37:36 PM [Eastern Standard Time] * SVR:USPTO-EFXRF-6/28 * DNIS:2738300 * CSID:713 977 7011 * DURATION (mm-ss):02-50

37.**(canceled)**

38.**(canceled)**

39.**(canceled)**

40.**(canceled)**

41.**(canceled)**

42.**(canceled)**

43.**(canceled)**

44.**(canceled)**

45.**(canceled)**

46.**(canceled)**

47.**(canceled)**

48.**(canceled)**

49.**(canceled)**

50.**(currently amended)** A composition comprising a polymerizing agent including a molecular tag covalently bonded to a site on the polymerizing agent and a deoxynucleotide triphosphate (dNTP) including a molecular tag covalently bonded to the β or γ phosphate group of the dNTP, where at least one of the tags has a fluorescence property that undergoes a change before, during and/or after each of a sequence of monomer incorporations due to an interaction between the polymerizing agent tag and the ~~monomer~~ dNTP tag.

51.**(previously presented)** The composition of claim 50, wherein the polymerizing agent is a polymerase or reverse transcriptase.

52.**(previously presented)** The composition of claim 51, wherein the polymerase is selected from the group consisting of *Taq* DNA polymerase I, T7 DNA polymerase, Sequenase, and the Klenow fragment from *E. coli* DNA polymerase I.

53.**(previously presented)** The composition of claim 51, wherein the reverse transcriptase comprises HIV-1 reverse transcriptase.

PAGE 7/9 * RCVD AT 12/29/2005 12:37:36 PM [Eastern Standard Time] * SVR:USPTO-EFXRF-6/28 * DNIS:2738300 * CSID:713 977 7011 * DURATION (mm-ss):02-50

54.**(previously presented)** The composition of claim 50, wherein the tags comprise fluorescent tags and the fluorescence property comprises an intensity and/or frequency of emitted fluorescent light.

55.**(previously presented)** The composition of claim 54, wherein the fluorescence property is fluorescence resonance energy transfer (FRET) where either the monomer tag or the polymerase tag comprises a donor and the other tag comprises an acceptor and where FRET occurs when the two tags are in close proximity.

56.**(previously presented)** The composition of claim 52, wherein the polymerase comprises *Taq* DNA polymerase I having a tag attached to an amino acid at a specific amino acid position of the *Taq* DNA polymerase I, where the amino acid position is selected from the group consisting of 513-518, 643, 647, 649 and 653-661 of SEQ. ID No. 11, where the tag comprises a fluorescent molecule.

PAGE 8/9 * RCVD AT 12/29/2005 12:37:36 PM [Eastern Standard Time] * SVR:USPTO-EFXRF-6/28 * DNIS:2738300 * CSID:713 977 7011 * DURATION (mm-ss):02-50